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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/381,899	12/16/1999	JAN ANDERSSON	097037014006	4564

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EXAMINER

BASHORE, WILLIAM L

ART UNIT	PAPER NUMBER
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2176

DATE MAILED: 07/13/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/381,899

Applicant(s)

ANDERSSON, JAN

Examiner

William L. Bashore

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 25 April 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 2, 4-5, 8-10, 13-15, 19, 21-22, 25-27, 30-32, 41-55 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 2, 4-5, 8-10, 13-15, 19, 21-22, 25-27, 30-32, 41-55 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_

- 4) ☒ Interview Summary (PTO-413)  
Paper No(s)/Mail Date 4/11/2005
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

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### DETAILED ACTION

1. This action is responsive to the following communications: amendment, filed 4/25/2005.
2. Claims 2, 4-5, 8-10, 13-15, 19, 21-22, 25-27, 30-32, 41-55 pending. Claim 55 has been added. Claims 41, 45, 49, 50, 51, 53, 54, 55 are independent claims.

### *Claim Rejections - 35 USC § 103*

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 2, 4-5, 8-10, 13-14, 19, 21-22, 25-27, 30-31, 41-49 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent Number 5,293,429 to Pizano et al. issued March 8, 1994 ("Pizano") in view of U.S. Patent Number 5,434,933 to Karnin et al. issued July 18, 1995 ("Karnin"), and in view of Betts et al. ("Betts"), U.S. Patent No. 5,428,694 issued June 1995, and further in view of U.S. Patent Number 4,933,979 to Suzuki, issued June 12, 1990 ("Suzuki").

Regarding independent claims 41 and 45, Pizano teaches scanning (*i.e.*, providing) an unknown form(s). (Pizano, col. 2, lines 64-66; Fig. 1.)

Pizano further teaches generation of a form map based on designs on said unknown form(s) for identifying information contained thereon inasmuch as Pizano's feature extraction is equivalent to the generation of a form map. (Pizano, col. 2, lines 64-66; Fig. 1)

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Pizano does not specifically teach "*formats not predefined*" (i.e. predefined layout templates), and does not teach predefined data content locations. However, Betts teaches a method of data recognition from scanned documents (Betts Abstract). Although Betts teaches a template, said template is not used for storing a predefined pattern. Instead, it is used for generally showing the process sequence of data to look for (a processing template). This allows for adaptively changing the processing sequence as the system gathers clues about an unknown form for eventual recognition and data gathering (i.e. skipping bar code recognition if the processing template reveals that no bar code should be present, etc.) (see Betts column 1 lines 43-46, column 2 lines 9-15, column 3 lines 28-63, column 5 lines 3-31, column 7 lines 43-50). It would have been obvious to one of ordinary skill in the art at the time of the invention to apply Betts to Pizano, providing Pizano an alternate way to recognize forms so as to minimize the time required to process a form (Betts Abstract).

Pizano further teaches searching and comparing the generated form map with stored, registered maps in a map storage means. (Pizano, col. 4, lines 58-67.)

Pizano does not explicitly teach storage of generated form maps in the map storage means when they do not coincide with a stored map according to pre-determined limits for agreement. However, Karnin teaches the storage of image signatures, which are analogous to form maps, as new templates when the image does not match any previously stored template. (Karnin, col. 8, lines 36-38.) One of ordinary skill in the art would have recognized that one might want to be able to match new forms in the future. Therefore, in view of Karnin's teaching it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Pizano to store non-coinciding form maps.

Pizano further teaches indicating agreement according to the limits for agreement when agreement is found inasmuch as Pizano discloses form identification as output when a match is achieved. (Pizano, col. 2, line 67 – col.3, line 2.)

Pizano does not specifically teach text and colors. However, Suzuki teaches both the recognition of characters (Suzuki, col. 6, line 66 – col. 8 line 5) and the recognition of different gradations of tones (Suzuki, col. 8, lines 15-44). One of ordinary skill in the art would have recognized that these features provided the

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benefit of recognizing more and more complex forms. Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the combination of Pizano and Karnin to include text and colors as objects.

Regarding **dependent claims 2 and 19**, neither Pizano nor Karnin teach the generated form map including an object area list with objects contained in the unknown form. Suzuki, however, teaches the storage of information sets for a set of reading areas, which are analogous to object area lists inasmuch as reading areas identify parts of a form and can contain objects such as text or images (Suzuki, col. 6, lines 1-3, 39-46), and provide the benefit of efficient and accurate form recognition. ((Suzuki, col. 17, lines 42-57.) Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the combination of Pizano and Karnin to use an object area list.

Regarding **dependent claim 4**, claim 4 incorporates substantially similar subject matter as claimed in claim 41, and in further view of the following, is rejected along the same rationale.

Pizano discloses “the use of horizontal and vertical lines as features for identifying a form.” (Pizano, col. 3, lines 5-6; Figs. 5 and 6.)

Regarding **dependent claim 21**, Pizano discloses “the use of horizontal and vertical lines as features for identifying a form.” (Pizano, col. 3, lines 5-6; Figs. 5 and 6.)

Regarding **dependent claims 5 and 22**, Pizano discloses generating horizontal and vertical keys by dividing the unknown form into a pre-determined number of horizontal and vertical segments along x and y axes, respectively, wherein each segment is equivalent to one horizontal or vertical key position. (Pizano, col. 6, lines 35-51; Fig 5.)

Regarding **dependent claims 8 and 25**, Pizano discloses horizontal and vertical keys constituting line keys used in the searching and comparison step inasmuch as Pizano teaches the comparison of line key patterns during this step. (Pizano, col. 6, lines 36-40; Fig. 5.)

Regarding **dependent claims 9 and 26**, Pizano does not teach sorting, but it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Pizano to sort regions (*i.e.*, line keys) in the storage means according to the number of markings inasmuch as it would have been obvious to extend Pizano's method of assigning one or no tags to a region (Pizano, col. 6, lines 55-59) to a method that assigns a plurality of tags to a region because one of ordinary skill would have recognized that this would have provided more information for the comparison step.

Regarding **dependent claims 10 and 27**, Pizano does not teach the application of horizontal and vertical keys to objects in the object area list. However, in view of Suzuki's use of object area lists, noted above, it would have been obvious to one of ordinary skill in the art at the time of the invention to extend the application of Pizano's use of horizontal and vertical keys, noted above regarding dependent claims 5-6 and 22-23, from lines to objects, because one of ordinary skill in the art would have recognized that Pizano's use of line keys in a co-ordinate system was an efficient and accurate way of locating objects.

Regarding **dependent claims 13 and 30**, Pizano does not teach the comparison of a generated object key constituted by a horizontal and/or a vertical key position with a stored object key during a search procedure. However, in view of Suzuki's use of object area lists, noted above, it would have been obvious to one of ordinary skill in the art at the time of the invention to extend the application of Pizano's use of line keys, noted above regarding dependent claims 8 and 25, to object keys because one of ordinary skill in the art would have recognized that such an object key precisely located the position of the object on the form.

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Regarding dependent claims 14 and 31, Pizano does not teach the sorting of object keys according to a number of markings. However, in view of Suzuki's use of object area lists, noted above, it would have been obvious to one of ordinary skill in the art at the time of the invention to extend the obvious modification of Pizano's method to sort line keys, noted above regarding dependent claims 9 and 26, to sort object keys according to the number of markings because one of ordinary skill in the art would have recognized that the number of markings gave additional weight in the comparison process.

In regard to dependent claims 42, 43, 44, Pizano teaches a knowledgebase (Pizano Figure 1 item 18). Claims 43, 44 incorporate substantially similar subject matter as claimed in claims 41 and 5, and are rejected along the same rationale.

In regard to claims 46, 47, 48, claims 46, 47, 48 reflect the apparatus comprising computer readable instructions used for implementing the methods as claimed in claims 42, 43, 44, and are rejected along the same rationale. Pizano teaches a knowledgebase (Pizano Figure 1 item 18).

In regard to independent claim 49, claim 49 reflects the computer program product comprising computer readable instructions used for implementing the methods as claimed in claim 41, and is rejected along the same rationale.

5. Claims 15 and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pizano, Karnin, Betts, and Suzuki as applied to claims 41 and 45 above, and further in view of U.S. Patent Number 5,642,288 to Leung et al. ("Leung") issued June 24, 1997, filed November 10, 1994.

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Regarding **dependent claims 15 and 32**, Pizano does not specifically disclose searching resulting a predefined number of requested probable candidates for the currently searched form. However, Leung discloses returning a predefined number of matches to the user in the context of a document recognition and handling system. (Leung, col. 10, lines 1-18.) It would have been obvious to one of ordinary skill in the art at the time of the invention to have modified the combination of Pizano and Karnin to include Leung's step of returning a predefined number of requested probable candidates for the currently searched form because one of ordinary skill in the art would have recognized that returning too many results would be confusing to the user, and that the more results returned, the less likely that some results would provide a match.

Further, Karnin teaches manual support of the registration process by an operator. (Karnin, col. 8, lines 33-35.) This limitation would have been obvious to one of ordinary skill in the art because one of ordinary skill would have recognized a need to deal with the inevitable occurrence of machine error or imprecision in the comparison process.

**6. Claims 50-55 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pizano, in view of Betts, and in view of Karnin.**

**In regard to independent claim 50**, Pizano teaches scanning (*i.e.*, providing) an unknown form(s). (Pizano, col. 2, lines 64-66; Fig. 1.)

Pizano does not specifically teach searching stored identities from previously processed forms. However, Betts teaches a method of data recognition from scanned documents (Betts Abstract), allowing for adaptively changing the processing sequence as the system gathers clues about an unknown form for eventual recognition and data gathering via management of forms previously processed (Betts column 9 lines 60-68 to column 10 lines 1-5). It would have been obvious to one of ordinary skill in the art at the time of the invention to apply Betts to Pizano, providing Pizano an alternate way to help recognize forms so as to minimize the time required to process a form (Betts Abstract).



Pizano further teaches generation of a form map based on designs on said unknown form(s) for identifying information contained thereon inasmuch as Pizano's feature extraction is equivalent to the generation of a form map. (Pizano, col. 2, lines 64-66; Fig. 1).

Pizano further teaches searching and comparing the generated form map with stored, registered maps in a map storage means. (Pizano, col. 4, lines 58-67.)

Pizano does not explicitly teach storage of generated form maps in the map storage means when they do not coincide with a stored map according to pre-determined limits for agreement. However, Karnin teaches the storage of image signatures, which are analogous to form maps, as new templates when the image does not match any previously stored template. (Karnin, col. 8, lines 36-38.) One of ordinary skill in the art would have recognized that one might want to be able to match new forms in the future. Therefore, in view of Karnin's teaching it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Pizano to store non-coinciding form maps.

Pizano further teaches indicating agreement according to the limits for agreement when agreement is found inasmuch as Pizano discloses form identification as output when a match is achieved. (Pizano, col. 2, line 67 – col.3, line 2.)

**In regard to independent claims 51, 53 and dependent claim 52, claims 51, 53 and 52 incorporate substantially similar subject matter as claimed in claim 50, and in further view of the following, are rejected along the same rationale.**

Although Pizano teaches a template form scanned into a Form Dictionary for the purpose of processing actual inputted forms (Pizano Figure 1), Pizano does not specifically teach "*the absence of any inputted templates*", or "*preprocessing templates*". However, Betts teaches a method of data recognition from scanned documents (Betts Abstract). Although Betts teaches a template, said template is not used for identifying a document (i.e. its layout, etc.). Instead, it is used for generally showing the process sequence of data to look for

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on an unknown form (a sequence processing template). This allows for adaptively changing the processing sequence as the system gathers clues about an unknown form for eventual recognition and data gathering (i.e. skipping bar code recognition if the processing template reveals that no bar code should be present, etc.) (see Betts column 1 lines 43-46, column 2 lines 9-15, column 3 lines 28-63, column 5 lines 3-31, column 7 lines 43-50). It would have been obvious to one of ordinary skill in the art at the time of the invention to apply Betts to Pizano, providing Pizano an alternate way to recognize forms so as to minimize the time required to process a form (Betts Abstract).

**In regard to independent claim 54**, claim 54 reflects the apparatus comprising computer readable instructions used for implementing the method as claimed in claim 50, and is rejected along the same rationale.

**In regard to independent claim 55**, claim 55 incorporates substantially similar subject matter as claimed in claims 50, 51, and is rejected along the same rationale.

#### ***Response to Arguments***

7. Applicant's arguments filed 4/25/2005 have been fully and carefully considered but they are moot in view of the new ground(s) of rejection. Accordingly, this action is non-final.

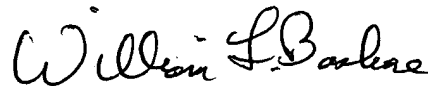
#### ***Conclusion***

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to William L. Bashore whose telephone number is (571) 272-4088. The examiner can normally be reached on 11:30am - 8:00pm EST.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Heather Herndon can be reached on (571) 272-4136. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

9. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



**WILLIAM BASHORE  
PRIMARY EXAMINER**

July 10, 2005